
Astragalus gooraiensis (Fabaceae), a New Species from Jammu and Kashmir, India

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ABSTRACT. A new species of *Astragalus* L. (Fabaceae), *A. gooraiensis* L. B. Chaudhary, is described and illustrated from Jammu and Kashmir in India. The new species differs from *A. tibetanus* Bentham ex Bunge in shorter flowers (11–12 mm), shorter and campanulate calyx (4–5 mm), and oblong, straight, and unilocular pods with the stipe more or less equal to the calyx tube.

Key words: *Astragalus*, Fabaceae, India, IUCN Red List, Jammu, Kashmir.

Astragalus L., with about 3000 species worldwide, occurs primarily in cold arid and semiarid mountainous regions of the Northern Hemisphere and South America (Podlech, 1986; Zarre & Podlech, 1997). Recent investigations (Chaudhary, 2005; Chaudhary & Srivastava, 2007) reveal that in India the genus has more than 90 species chiefly distributed in the temperate, alpine, and cold deserts of the Himalayas. However, previous works (Sanjappa, 1992; Chaudhary & Rao, 2002; Kumar & Sane, 2003) have recorded only 75 to 80 species from India. During taxonomic study of Indian *Astragalus*, the author had the opportunity to procure a large number of specimens (BM, CAL) on loan. A wrongly identified but interesting specimen was encountered, collected from Jammu and Kashmir by C. B. Clarke in 1876. Ali (1961, 1977) has determined this specimen to be *A. tibetanus* Bentham ex Bunge. On critical examination, it is identified as a new species, which is described and illustrated below. The new species belongs to section *Hypoglottidei* DC., which was previously represented by a solitary species, *A. tibetanus*, in India.

Astragalus gooraiensis L. B. Chaudhary, sp. nov.

TYPE: India. Jammu and Kashmir: Kashmir, Goorai, 8000 ft., 21 July 1876, C. B. Clarke 29345B (holotype, BM). Figures 1, 2.

Ab *Astragalo tibetano* Bentham ex Bunge floribus 11–12 mm longis, calyce 4–5 mm longo, campanulato, leguminibus oblongis, rectis, unilocularibus, stipitibus plus minusve tubum calycis aequantibus differt.

Plants ca. 21 cm; stems ca. 16 cm, sparsely pubescent with minute, white, appressed hairs. Stipules

greenish, ca. 7 mm, narrowly lanceolate, acuminate at tip, free from the petiole, leaf opposed, connate at base, sparsely pubescent adaxially, glabrous abaxially; leaves 4–6 cm, imparipinnate; petioles ca. 1 cm, like the rachis grooved adaxially; rachis ca. 5 cm; leaflets 5 to 8 pairs, 8–13 × 3–6 mm, oblong, cuneate at base, obtuse at apex, sparsely pubescent with minute, white, appressed hairs abaxially, glabrous adaxially. Inflorescence 6–8 cm, capitate raceme; peduncles 4.5–5.5 cm, longer than subtending leaf, hairy as the stem or slightly blackish at apex; racemes ca. 1.5 cm, 6- to 10-flowered, dense; bracts greenish, 1.5–2.5 mm, longer than pedicels, sparsely ciliate with mixed black and white hairs; pedicels 1–1.5 mm, pubescent with mixed blackish brown and white, appressed hairs; calyx 4–5 mm, campanulate, oblique at mouth, pubescent with minute, brown or white or mixed brown and white, appressed hairs, more pubescent at teeth, tube ca. 3 mm, upper teeth ca. 1 mm, remote, lower teeth ca. 2 mm, crowded; standard 11–12 × 6 mm, obovate to elliptic, emarginate at apex, narrowed toward base; wings ca. 10.5 mm, slightly shorter than the standard, lamina ca. 6.5 × 2 mm, oblong or narrowly obovate, slightly curved toward tip, obtuse at apex, auricle straight, oblong-rhomboid, subobtuse, ca. 1 mm, claw ca. 4 mm; keel ca. 9 mm, shorter than wing petals, lamina ca. 4.5 × 3 mm, incurved toward apex, obtuse, auricle minute, triangular, acute, claw ca. 4.5 mm; staminal tube ca. 6 mm, filaments free in upper 2.5–3 mm; ovary ca. 2.5 mm, densely pubescent with white, appressed hairs, with a stipe ca. 2 mm; style ca. 5 mm, incurved above; stigma capitate, glabrous. Pods greenish, 11–13 × 4 mm, oblong, straight, turgid, unilocular, pubescent with minute blackish brown, appressed or subappressed hairs, stipe ca. 3 mm, ± equal to calyx tube. Seeds not seen.

Distribution and preliminary assessment of conservation status. Endemic to India (Jammu and Kashmir). An intensive survey of *Astragalus* in alpine regions of the Himalayas in India and study of the flora of neighboring countries as well as many regional flora (Baker, 1876; Ali, 1977; Grierson & Long, 1987) show that *A. gooraiensis* is confined only to Goorai region in Jammu and Kashmir. The new species is



Figure 1. Holotype specimen (*C. B. Clarke 29345B*, BM) of *Astragalus gooraiensis* L. B. Chaudhary.

known from only two specimens representing a single collection made in 1876. The study of specimens housed at various herbaria (BM, BSD, BSHC, CAL, CDRI, K, LBG, LWG) reveals that the new species has not been recollected after type collection. It indicates that the species is not common in the field and is perhaps confined to a very restricted locality. The type locality is also not intensively explored in recent times due to insurgency and terrorist activities prevailing in that area. The main threat to the species in this area is grazing along with other herbaceous plant species. Based on the preliminary observation it should therefore be regarded as CR (Critically Endangered) according to IUCN criteria (IUCN, 2001).

Phenology. Flowering and fruiting in July.

Relationships. In gross morphology *Astragalus gooraiensis* resembles *A. tibetanus*, but distinctly differs in its 11–12 mm flowers; campanulate, 4–

5 mm long calyx; and pods that are oblong, straight, and unilocular with a stipe more or less equal to the calyx tube. In *A. tibetanus*, the flowers are 15–20 mm; the calyx is tubular and 6.5–8 mm long; and the pods are linear, slightly falcate, grooved dorsally, and completely bilocular with the stipe shorter than the calyx tube. The differences between the two species have been provided in the key couplet below.

- 1a. Flowers 15–20 mm long; calyx 6.5–8 mm long, tubular; pods linear, slightly falcate, grooved dorsally, bilocular; stipe shorter than calyx tube *Astragalus tibetanus*
 1b. Flowers 11–12 mm long; calyx 4–5 mm long, campanulate; pods oblong, straight, turgid, unilocular; stipe more or less equal to calyx tube *Astragalus gooraiensis*

Paratype. INDIA. **Jammu & Kashmir:** Kashmir, Goorai, 8000 ft., 21 July 1876, *C. B. Clarke 29345A* (CAL).

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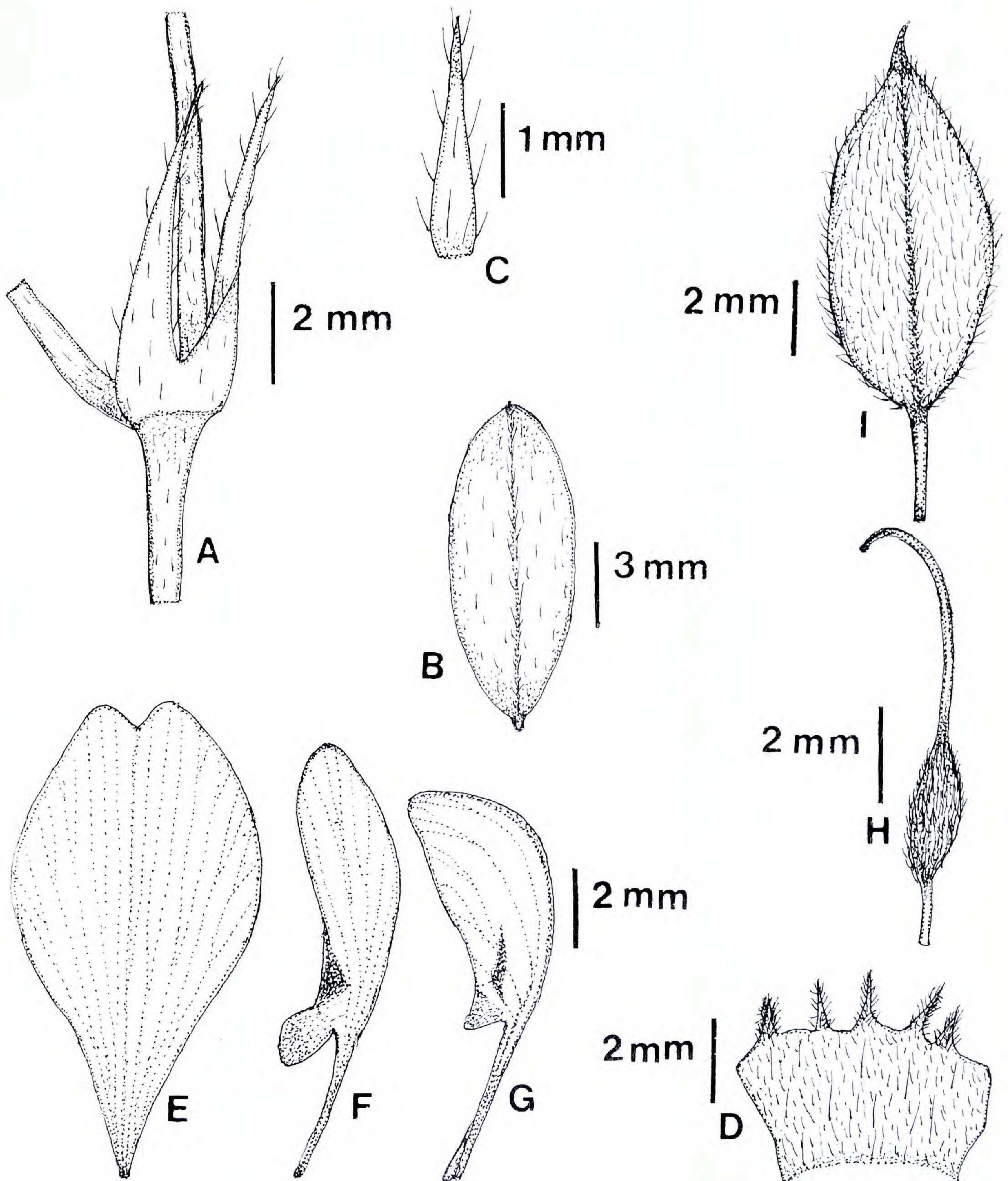


Figure 2. *Astragalus gooraiensis* L. B. Chaudhary. —A. Stipules. —B. Leaflet (abaxial surface). —C. Bract. —D. Calyx (opened, outer surface). —E. Standard. —F. Wing petal. —G. Keel petal. —H. Pistil. —I. Pod. Same scale for E–G. Drawn from the holotype, C. B. Clarke 29345B (BM).

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